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We claim:

1. A process for carrying out a reactive distillation in the
5 presence of a heterogeneous catalyst which is suspended as
disperse phase in the liquid, wherein
 - part of the catalyst-containing suspension is
continuously discharged from the column and
 - 10 • is treated in a work-up stage and
 - at least part of the worked-up catalyst is
returned to the column.
- 15 2. A process as claimed in claim 1, wherein the catalyst is
discharged from the column during operation of the column.
3. A process as claimed in claim 1 or 2, wherein the worked-up
20 and/or fresh catalyst is fed into the column during operation
of the column.
4. A process as claimed in any of claims 1 to 3, wherein
structured packing is used as internals in the region in
25 which the catalyst is located in the column.
5. A process as claimed in claim 4, wherein some of the catalyst
particles adhere reversibly to the packing used.
- 30 6. A process as claimed in claim 5, wherein wire mesh is used as
packing.
7. A process as claimed in claim 6, wherein roughened wire mesh
is used.
- 35 8. A process as claimed in any of claims 1 to 3, wherein trays
having wide openings are used in the region in which the
catalyst is located in the column.
- 40 9. A process as claimed in any of claims 1 to 8, wherein the
catalyst is separated off in the middle region of the column
and is later fed back in.
- 45 10. A process as claimed in any of claims 1 to 8, wherein the
catalyst is separated off at the bottom of the column and is
later fed back in.

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11. A process as claimed in any of claims 1 to 10, wherein separation devices which are effective in the longitudinal direction are installed in the column.
- 5 12. A process as claimed in any of claims 1 to 11, wherein the catalyst is separated off by filtration, flotation or sedimentation.
- 10 13. A process as claimed in claim 12, wherein a crossflow filtration is carried out as filtration.
- 15 14. A process as claimed in any of claims 1 to 12, wherein the catalyst which has been separated off is regenerated by washing with a caustic alkali, a base or a solvent, by calcination or by another method.
- 20 15. The use of a process as claimed in any of claims 1 to 14 for esterifications, acetal formations, etherifications, aldolizations or hydrogenations.
16. The use of a process as claimed in any of claims 1 to 14 for the aldolization of acetone and citral to form pseudoionone.

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